

## ABSTRACT

Methods and apparatuses for calculating a scale relationship of an imaging system are disclosed. The methods and apparatuses leverage a known value of a characteristic of an object to partially calibrate an imaging system “on-the-fly”, and minimize, if not eliminate, the need for a separate calibration image(s) and/or object(s). Specifically, the characteristic is found and measured in an image to provide a measured value; and the scale relationship (i.e. the relationship between physical dimensions and image dimensions) is calculated using the measured value and the known value. The same image used to calculate the scale relationship is processed, where processing includes, for example inspection. The known value can be a measurement of an aspect of many things, including an inherent feature and/or boundary thereof, whether it is rotationally or non-rotationally symmetric, an added feature and/or boundary thereof, such as a fiducial, or a relationship between features, for example. One embodiment uses a model to find the characteristic. A preferred embodiment is described that inspects an end-face of a fiber-optic cable, wherein the known value is the diameter of an annular cladding of the fiber-optic cable.